

## NOTEWORTHY PLANTS FROM IDAHO. II

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During the summer of 1941 Mrs. Cronquist and I spent two months collecting plants in central Idaho. A complete set is deposited at the Missouri Botanical Garden, and nearly complete sets at the Gray Herbarium and the University of Idaho, Southern Branch; partial sets are deposited at the University of Minnesota and the Utah State Agricultural College. Several collections represent plants not previously known to occur in the state; a few are apparently undescribed. In the following discussion, unless otherwise indicated, the collection numbers are my own.

There are in Idaho at least two entities that have commonly been referred to *Melica bulbosa* Geyer ex Port. and Coult. One, the usual form of the species, is single-stemmed or loosely caespitose, with obvious bulbs at the bases of the culms. The other is very densely caespitose, growing in large tufts, with the bases of the culms only slightly if at all bulbous. Although the degree of bulbousness of the culms is known to be a variable character in *M. bulbosa*, the appearance of the caespitose form is so striking that in the field it might well be taken for a different species. The clumps are very dense, and difficult to separate into specimens suitable for herbarium sheets. It may be significant that in 1899 Aven Nelson considered the habit of specimens he collected so remarkable that he noted on the labels sent out with them, "in dense tufts with matted roots." Dr. W. S. Boyle, of the University of California, who is making a cytogenetic study of the genus, writes me that the caespitose plants I sent him do not differ sufficiently from the usual form to warrant separate treatment. Since the two forms are decidedly different in appearance, and are readily distinguishable in the field, I prefer to regard them as two varieties of one species.

*MELICA BULBOSA* Geyer var. *typica* nom. nov. *M. bulbosa* Geyer ex Port. and Coult. Syn. Fl. Colo. 149. 1874.

*MELICA BULBOSA* Geyer var. *caespitosa* var. nov. Planta caespitosa culmis ad basim haud vel vix bulbosis, cetera similis var. *typicae*.

Type. Open rocky granitic slope above west side of Alturas Lake, Blaine County, Idaho, altitude 7200 feet, June 22, 1941, 2603 (Missouri Botanical Garden; isotypes, Utah State Agricultural College, University of Idaho, Southern Branch). Cotypes. IDAHO. Hillside above Mill Creek, 12 miles west of Challis, Custer County, altitude 7800 feet, July 8, 1941, 2977; granitic outcrop above Wildhorse Creek, 25 miles southwest of Chilly, Custer County, altitude 7900 feet, July 23, 1941, 3354. WYOMING. Teton Mountains, Uintah County, August 16, 1899, Nelson and Nelson 6540.

*SITANION HANSENI* × *AGROPYRON SPICATUM*. On a rocky granitic hillside above Bull Trout Lake, Boise County, 35 miles west of Stanley at an altitude of 7000 feet, a colony of highly variable hordeaceous grasses was observed. A few spikes of the extreme of the robust plants were taken with the other plants of the same number (3615). A mile upstream and 200 feet higher on the same hillside, specimens of *Agropyron spicatum* (Pursh) Scribn. and Smith were seen and collected (3635). On examining my number 3615 in the herbarium, I find that the large spikes are quite uniform and represent *Sitanion Hanseni* (Scribn.) J. G. Smith. Other specimens of this number are so extremely variable as to be abnormal, transcending the differences between *Sitanion* and *Agropyron*. Spikes with all the spikelets solitary and with all the spikelets paired at the nodes occur on the same plant. One culm branches at the summit into two variable spikes. Tests made on a few rachises indicate that they disarticulate, but only on considerable urging. Individual portions of some of the spikes are strongly reminiscent of *Agropyron spicatum*. It is my opinion that the specimens represent a natural hybrid between *Sitanion Hanseni* and *Agropyron spicatum*.

*Carex obovoidea* sp. nov. Planta caespitosa, culmi 20–40 cm. alti, vaginae ventraliter rubro-maculatae, ad apices rubiginosae, inferae aphyllae; spiculae plures androgynae, coarctatae in capitulum 15–30 mm. longum, 8–20 mm. latum; squamae late ovatae, castaneae, marginalibus perspicuae; utriculi 3–3.5 mm. longi, 1 mm. lati, plerumque attenuatis ab basibus spongiositurgidus, dorsaliter paucinervi, ventraliter enervi; achenium obovatum, haud vel vix stipitatum, 1.5 mm. longum, minus quam 1 mm. latum; stigmata 2.

Caespitose, 20–40 cm. high, aphyllopodic; sheaths red-dotted ventrally and copper tinged at the mouths; spikes small, numerous in an ovoid or oblong head 15–30 mm. long, 8–20 mm. wide, sometimes slightly interrupted below, androgynous; scales broadly ovate, brown, with conspicuous hyaline margins; perigynium corky-thickened at the base, yellowish brown, changing to green upwards, or somewhat green-margined, 3–3.5 mm. long, 1 mm. wide, tapering from base to apex, or a little more strongly narrowed near the middle, prominently few-nerved dorsally, nerveless ventrally, margins serrulate, beak obliquely cut and dark brown at the tip; achene lenticular, obovate, broadest above the middle, scarcely stipitate, 1.5 mm. long, less than 1 mm. wide; stigmas 2.

Type. Mossy rocky meadow along tiny spring above Beaver Creek, near Marsh Creek, 25 miles northwest of Stanley, Custer County, Idaho, altitude 6500 feet, July 3, 1941, 2872 (Missouri Botanical Garden; isotypes at University of Idaho, Southern Branch and Utah State Agricultural College).

This species is a member of the small section *Vulpinae*, as treated by Mackenzie (1). It differs from the related *C. neurophora* Mack. and *C. nervina* Bailey in having the perigynia ventrally nerveless, and the sheaths ventrally red-dotted and copper-colored at the mouths. It differs from *C. Cusickii* Mack., of the related section *Paniculatae*, in its shorter stature, more contracted inflorescence, spongy-thickened perigynium-base, and tapering rather than abruptly contracted perigynium. It differs from all of these in its obovate achenes.

*Astragalus reclinatus* sp. nov. Planta perennis prostrata, caulibus 1 mm. crassis ad 50 cm. longis plus minusve strigosis; folia similiter strigosa foliolis 1-5 (plerumque 3) foliolo extremo 20-30 mm. longo, 3-5 mm. lato, eis lateralibus reductis vel defectis, stipulae virides parvulae 2-3 mm. longae, flores albidi-purpurei 12 mm. longi alis rostrum superantibus calyce 6 mm. longo, fructus sessilis 15-17 mm. longus, 3-4 mm. latus albido-strigosus suturis prominentibus haud intrusis.

Stems several from a perennial tap root, prostrate, spreading, up to 50 cm. long or more, about 1 mm. thick, green, striate, more or less pubescent with thick, short, nearly or quite basifixed hairs; leaves similarly pubescent, scattered, short-petiolate, with 1-5 (commonly 3) linear to narrowly lanceolate leaflets, the terminal one enlarged, mostly 20-30 mm. long and 3-5 mm. wide, tapering and acute at both ends, the lateral ones commonly somewhat reduced, mostly 10-20 mm. long and 1-3 mm. wide, sometimes absent; stipules tiny, green, triangular or ovate, free, 2-3 mm. long; flowers whitish, with a trace of purple, mostly 2-10 in short racemes; banner 12 mm. long, abruptly bent nearly at right angles 5 mm. from the base, the expanded portion 9 mm. long, 8 mm. wide and suborbicular when spread out; wings about 4 mm. wide and 11 mm. long, including the 5 mm. claw; keel 9 mm. long, 4 mm. high at the end, blunt; calyx with short black and white hairs intermingled in varying proportions, the tube 3.5-4 mm. long, the teeth triangular and about 2 mm. long; pod sessile, 1-celled, mostly 15-17 mm. long and 3-4 mm. wide, little-compressed, closely strigose with short white hairs, sutures prominent and not at all intruded.

Type. Moist alkaline bottoms along roadside two miles south of Dickey, Custer County, Idaho, altitude 6300 feet, July 14, 1941, 3086 (University of Minnesota; isotypes at Missouri Botanical Garden, Utah State Agricultural College and University of Idaho, Southern Branch).

This species of the section *Homalobus* is related to *A. flexuosus* Dougl. ex G. Don and the polymorphic *A. decumbens* (Nutt. ex T. & G.) Gray. The latter is common in the general area from which the type of *A. reclinatus* was taken, but was not seen in the immediate vicinity, nor have I ever seen it in the same type of

habitat. *A. flexuosus*, predominantly a species of the great plains, is not known to occur in Idaho.

The most conspicuous difference between *A. reclinatus* and its close relatives is its prostrate habit. Probably more important is the type of leaf. In *A. flexuosus* the lateral leaflets are several to numerous and well developed. The leaves of *A. decumbens* are highly variable, the leaflets often being in part reduced to phyllodia, but the terminal leaflet is affected as much as the others, and variation in that direction connects the species with the closely related *A. diversifolius* Gray, a rush-like plant in which the leaves are reduced to naked or nearly naked narrow rachises. In *A. reclinatus* the tendency for the terminal leaflet to be enlarged at the expense of the others. None of the leaves on my specimens have more than five leaflets, and some are quite simple.

The flower, although superficially resembling that of the larger-flowered types of *A. decumbens* ("*A. hylophilus*" for example), shows its own distinctive differences. In *A. decumbens* the wings scarcely surpass the keel; in *A. reclinatus* the wings obviously surpass the keel, though not so prominently as in *A. flexuosus*. The upward widening of the pods commonly found in *A. decumbens* is inconspicuous or absent in *A. reclinatus*. The cross section of the pod is less compressed than in *A. decumbens*, and a little more so than in *A. flexuosus*. The stipules in *A. reclinatus* are tiny and green; in *A. flexuosus* and *A. decumbens* they are larger, mostly 5 mm. long or more, and somewhat scarious.

Although *A. reclinatus* is represented by only one collection, its distinguishing features, extending from technical characters of the flower to leaf type and habit, are so pronounced that I see little room for doubt as to the validity of the species.

GENTIANA CALYCOSA Griseb. subsp. ASEPALA Maguire. Madroño 6: 151. 1942. *G. idahoensis* Gandoger, Bull. Bot. Soc. Fr. 65: 60. 1918.

This recently described entity is represented in my collections by the following numbers: 3640, 3681, 3756, and 3757. Prior to the publication of Maguire's paper (2), this material had been identified as *G. idahoensis* Gandoger, the type of which was collected by Evermann at Pettit Lake, Blaine County, Idaho. At that time I doubted that it was more than subspecifically distinct from *G. calycosa*. It is now evident that *G. idahoensis* should be added to the synonymy of *G. calycosa* subsp. *asepala*.

*Agastache Cusickii* (Greenm.) Heller was described from the Steens Mountains, Oregon, and is known to Peck (3) only from the Steens Mountains. An isotype is in the University of Minnesota herbarium. A small *Agastache* collected in Custer County, Idaho, closely resembles *Agastache Cusickii* in most respects, but differs in being only 10–15 cm. tall, herbaceous nearly or quite to the base, in having no petioles over about 5 mm. long, and in



being more finely pubescent on the leaves. Although it has been my practice to use the subspecific category for intraspecific units having largely distinct ranges, I hesitate to do so in this case because so little is known about the distribution and range of variation of the plants concerned. I am therefore adopting the term variety.

AGASTACHE CUSICKII (Greenm.) Heller var. *typica* nom. nov. *Lophanthus Cusickii* Greenman, *Erythea* 7: 119. 1899. *Agastache Cusickii* Heller, *Muhlenbergia* 1: 59. 1904.

AGASTACHE CUSICKII (Greenm.) Heller var. *parva* var. nov. Planta 10–15 cm. alta, herbacea fere vel omnino ad basim, petiola ad 5 mm. longa, cetera similis var. *typicae*.

Type. On limestone outcrop 1 mile southeast of Double Springs summit, 8 miles northeast of Dickey, Custer County, Idaho, at 8600 feet elevation, 3200 (Missouri Botanical Garden; isotypes at University of Minnesota, Utah State Agricultural College and University of Idaho, Southern Branch).

Dr. Palmer Stockwell has recently published a revision of the genus *Chaenactis* (4). In the group surrounding *C. Douglasii* (Hook.) H. & A., he places considerable stress on the duration of the root, character of the caudex, and detailed structure of the pappus. *C. rubricaulis* Rydb., *C. ramosa* Stockwell, and *C. augustifolia* Greene are segregated and allowed to stand on these bases. In dry open places of the Transition and Canadian Life zones of central Idaho grows a perennial branching *Chaenactis* which would key in Stockwell's treatment to *C. ramosa* or *C. rubricaulis*. It is distinctive enough and constant enough to warrant some sort of segregation from typical *C. Douglasii*, but intergrades with the latter so much that it should not be accorded full specific rank and cannot be other than a variety of *Chaenactis Douglasii*. If the pappus characteristics stressed by Stockwell prove constant, it cannot be the same as *C. ramosa*, a plant of central Washington. To *C. rubricaulis*, of southern Oregon and the Sierra Nevada, it seems more similar, differing most noticeably in the pink or pinkish corollas. Also it is less woody at the base, and does not have the "leaves . . . mostly basal-rosulate," as does *C. rubricaulis*. Monographic reconsideration, which is beyond the scope of this paper, may show these differences to be inconsequential, but, in any case, the Idaho plants seem to be clearly a variety of *C. Douglasii*.

CHAENACTIS DOUGLASII (Hook.) Hook. & Arn. var. *typica* nom. nov. *Hymenopappus Douglasii* Hook. Fl. Bor. Am. 1: 316. 1834. *Chaenactis Douglasii* Hook. & Arn. Bot. Beechey Voy. 354. 1840.

CHAENACTIS DOUGLASII (Hook.) Hook. & Arn. var. *ramosior* var. nov. Planta perennis, in caules ramosos paucos vel plures

divisa quasi ab terrae superficie, corolla et interdum antherae plus minusve rubellae, cetera similis var. *typicae*.

Perennial, branching at or just below the surface of the ground into several freely branching stems 10–40 cm. high; corollas and sometimes anthers more or less pink-tinged; pappus scales half as long as the corolla; otherwise as the typical variety.

Type. Fine granitic talus along Salmon River, 2 or 3 miles below Stanley, Custer County, Idaho, altitude 6200 feet, July 5, 1941, 2890 (Missouri Botanical Garden; isotypes at University of Idaho, Southern Branch and Utah State Agricultural College).

Cotype. Dry gravelly hillside at Galena summit, Blaine County, altitude 8750 feet, July 31, 1941, 3250.

Collections number 2695 and 3279, both from Custer County, are fairly representative, but some specimens are somewhat suggestive of var. *typica*. Collection number 3076, from a dry gravelly hillside above Willow Creek, 4 miles northeast of Dickey, Custer County, at 7000 feet, differs in lacking the pink tint and being nearly simple at the base, but is strongly branching, and may be regarded as intermediate to var. *typica*.

Some plants which are noteworthy for various reasons, chiefly for not previously having been known to occur in Idaho, are grouped by counties and listed below.

Blaine County: *Bromus japonicus* Thunb. (3421); *Stipa californica* Merr. & Davy (3422); *Carex scopulorum* Holm (3641); *Carex suborbiculata* Mack. (2644, 2672); *Saxifraga occidentalis* Wats. (2592); *Thlaspi idahoense* Payson (2585); *Amelanchier polycarpa* Greene (= *A. glabra* Greene?) (2596); *Epilobium obcordatum* Gray (3729); *Navarratia divaricata* (Torr.) Greene (2661); *Cryptantha echinella* Greene (3518); *Aplopappus aberrans* (A. Nels.) Hall (3769).

Custer County: *Poa rupicola* Nash (2990); *Carex subnigricans* Stacey (!) (3389, 3413); *Carex suborbiculata* Mack (2771); *Lesquerella Cusickii* Jones (3178); *Artemisia annua* L. (3799); *Townsendia montana* Jones (3197).

Boise County: *Subularia aquatica* L. (3646); *Thlaspi idahoense* Payson (3623); *Aplopappus Greenei* Gray subsp. *typicus* Hall (3625).

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